

# Editorial Issue 2/2022: The Heritage of Water-Related Infrastructures and Governance

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Humans have shaped water in all its forms and functions over time; they have controlled water through infrastructures, institutions and legislations. Many of the decisions made have benefited individuals, communities and nations; but many have also created new forms of injustice, making water the epicenter of societal issues and conflict from time past. Upstream and downstream communities have long been in conflict about the amount of water shared, its cleanliness or its use. Providing drinking water to some can mean cutting off others; creating dams to generate energy or store water may prevent fish from migrating. Building dikes can protect some people and put others in harm's way.

Institutions can protect and guide the functioning of water systems through laws and regulations. Innovations in technology, economic setup or political structure can lead to transformations of infrastructures and to an imbalance with the institutional system. As infrastructures grow beyond institutional boundaries (including national boundaries), planning control is often lacking. Once established, infrastructures and institutions can also delay change. Watersheds, for example, are often controlled by multiple institutions and therefore are not holistically regulated. Large-scale systems, moreover, often take away the agency of local groups and their access to water. Climate change intensifies the challenges presented by historical path dependencies. With momentum building to achieve goals and targets by 2030, we must carefully assess governing laws, policies and institutions with an eye to their role in solving (or impeding) today's water-related problems.

The second issue of *Blue Papers* focuses on relationships between infrastructure, governance systems and regulations. Authors from diverse disciplines and geographical backgrounds explore the multiple ways in which legislation and water rights relate to traditional water systems and local water cultures. The challenges of water management are also reflected in those of heritage governance. In the heritage field, the themes of nature and culture are separated, making it difficult to address the fields of water and heritage comprehensively. Given the interdependencies and conflicting interests of different stakeholders involved, we need a shared vision, (re)connecting water and heritage sectors so human and non-human actors can contribute to a sustainable tomorrow.

Jacqueline Vel, Tody Sasmita Jiwa Utama, Hertasning Ichlas and Adriaan Bedner open up part I with reflections on the ways in which past legislation threatens traditional water management systems, such as the rice terraces in Indonesia. Questions of water rights are also at the heart of Rutgerd Boelens' "Riverhood" project, in which he explores the disenfranchisement of local water

cultures and proposes new forms of justice in water management. Karim Nawaz argues for the recognition of spate irrigation as a sustainable irrigation system and for including it in educational programs. Maria Estefania Gioia exposes the institutional divide in World Heritage discourses to show the rift created by the division between natural and cultural heritage. Chris Underwood discusses the need for proper management of underwater cultural heritage. Frans Wijzen concludes part I by showing how religious institutions can hinder, but also help sustainable heritage and water management.

The methodologies and case studies in part II present tested and working examples. Sara Ahmed and Sukrit Sen propose heritage as leverage for better governance to water, through virtual exhibitions and education about water objects and practices. Ana Maria Fernandez Maldonado, Marcin Dąbrowski, Kasia Piskorek and Wout van den Toorn Vrijthoff similarly propose an ecosystem approach, especially as a tool to create common ground and start multi-stakeholder negotiation and planning. Historical water systems can still be relevant, as illustrated by Catalina Rey-Hernández and Inge Bobbink in their article on the floating agriculture of the Chinampas in Mexico. Similarly, Said Madani provides insights into the contemporary relevance of ancient irrigation systems – and their connected governance structures – in the Algerian desert. The case studies of Maria Estefania Gioia, Gül Aktürk and Sara Berahman make clear how natural phenomena are interconnected with cultural objects and practices and they argue for improved governance tools to be able to protect and preserve vulnerable water heritage. Jonathan Doe’s account complements this line of thinking with a case in which local “knowledge holders” were sidelined in wetland management. Javier Lizaraburu similarly presents an ancient traditional water system, decolonizing narratives that obscured the indigenous role in its creation. Nanco Dolman closes this issue with another example of proper collaboration for new natural heritage.

Together, these articles demonstrate the need for a rethinking of “hidden designers”: the legal and institutional frameworks in which water is managed. They call for bridging divides between nature and culture, and between “top down” and “bottom up” governance. It is crucial to be able to negotiate the sometimes contrasting values and interests in water management: to preserve and to develop, to build economically viable structures and to protect vulnerable water structures, and to make global decisions with local cultures and interests in mind. The new concepts and methods proposed in this issue help us connect past objects and structures to sustainable water futures.